AGRICULTURAL MEMORANDUM No. 551

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GRAIN MAIZE YIELDS IN THE EASTERN REGION

- C V Smith

1. INTRODUCTION

This note is an extension of Ag. Mem 457, and is written to meet a request for information on potential yields over a typical sample of years on typical sites.

The term potential yield is taken to reflect direct weather effects only; indirect weather effects might be expected to reduce these potential yields, and would arise from weather influences on pests and disease and the adequacy of field operations.

The essential parameter, in the regression equation developed between maize yield and weather factors on Oxford data, is total solar radiation. The problem of estimating maize yields in the Eastern Region thus turns an observation or estimation of this quantity. Where convenient radiation data are not available, use has been made of the relationships developed by Day (1961), though the 32 month period that he worked with has been extended here to include the 14 year record of total solar radiation on a horizontal surface at Cambridge. In this way, mean daily values of total radiation for a given month are obtained from mean daily sunshine hours for the month, for sites other than Cambridge.

2. RESULTS

ESTIMATED GRAIN MAIZE YIELDS AT 15% MC (CWTS/ACRE)

Year	Site				
	Cambridge	Hertford	Norwich	Saxmundham	Colchester
1972	33.0	43.5	27.2	26.5	25.0
1971	58.0	50.5	54.5	55.4	54.0
1970	54.0	54.0	48.7	46.4	52.2
1969	50.1	49.0	51.0	58.4	54.0
1968	31.0	42.0	40.5	33.3	38.0
1967	63.0	56.0	56.4	58.8	57.5
1966	46.2	56.0	39.0	35.3	40.5
1965	38.4	37.5	30.7	27.8	30.5
1964	46.1	48.0	36.2	45.8	44.5
1963	18.8	36.0	35.6	37.4	37.8
Mean	43.5	47.3	42.0	42.5	41.7
Range	19-63	36-56	27-56	26-59	25-57
S. Dev	13.4	6.9	9.6	11.4	10.5

Hertford based on Rothamsted radiation observation.
Norwich based on Morley St Botolph/Sprowston sunshine data
Saxmundham based on Wattisham and Lowestoft sunshine data
Colchester based on Writtle sunshine data.

Meteorological Office
Cambridge
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3. References

C V Smith	1972	Areas in the Eastern Region Suitable for the economic production of grain maize Ag. Man. 457
G J Day	1961	Distribution of total solar radiation on a horizontal surface over the British Isles and adjacent areas Met. Mag. Vol 90, No. 1071, pp 269-283.